The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A porous solid ion exchange wafer having a combination of an biomolecule capture-resin and an ion-exchange resin forming a charged capture resin within said wafer.

2. The wafer of claim 1, wherein the biomolecule-capture resin contains an anion of valence +2.

3. The wafer of claim 2, wherein the anion is a transition metal ion.

4. The wafer of claim 2, wherein the anion is one or more of Ni, Co, Cu, Zn, Ca, Mg or mixtures thereof.

5. The wafer of claim 3, wherein the transition metal ion is Ni, Co, Zn or mixtures thereof.

6. The wafer of claim 1, wherein the biomolecule-capture resin contains an affinity chromatography resin or an immobilized metal ion affinity chromatography resin or mixtures thereof.

7. The wafer of claim 6, wherein the biomolecule capture-resin includes one or more of glutathione, calmodulin, cellulose, anti-FLAG, amylose, T7 antibody, S-protein, bis-arsenical fluorescein dye FLAsH, chitin, an avidin resin or streptavidin or mixtures thereof.

8. The wafer of claim 7, wherein the avidin resin is monomeric.

9. The wafer of claim 1, wherein the biomolecule capture-resin is present in the range of from about 5% by weight to about 40% by weight of the wafer.

10. The wafer of claim 9, wherein the biomolecule capture-resin is present at about 20% by weight of the wafer.

11. The wafer of claim 1, wherein the ion-exchange resin is present in the range of from about 30% by weight to about 80% by weight of the wafer.

12. The wafer of claim 11, wherein the ion-exchange resin is present in the range of from about 55% by weight to about 70% by weight of the wafer.

13. The wafer of claim 1, wherein the weight ratio of the biomolecule capture-resin to the ion-exchange resin is in the range of from about 15 to about 25.

14. The wafer of claim 1, wherein the wafer is a flexible porous ion-exchange material containing one or more of anion-exchange entities or cation-exchange entities or mixtures thereof immobilized with respect to each other with a binder comprising about 25% to about 45 % by weight of the porous ion-exchange material without substantially coating the entities.

15. The wafer of claim A14, wherein the porous wafer contains at least 15% porosity and the binder is present in a weight ratio to the entities of about 1:3.

16. The wafer of claim 15, wherein the porous wafer has a porosity in the range of from about 15% to about 60%.

17. The wafer of claim 1, wherein the wafer contains one or more of a strong acid resin, a weak acid resin, a strong basic resin or a weak basic resin.

18. A porous solid ion exchange wafer having a combination of a biomolecule capture-resin and an ion-exchange resin forming a charged capture resin within said wafer containing a biomolecule with a tag.

19. The wafer of claim 18, wherein the tag is genetically engineered.

20. The wafer of claim 19, wherein the tag is histidine or multiple histidines in sequence or intersperced within a sequence or interspersed within a sequence.

21. The wafer of claim 19, wherein the tag is a sequence of amino acids at least one of which is biotinylated.

22. The wafer of claim 18 , wherein the tag is one or more of Glutathione S-Transferase(GST) tag, calmodulin binding peptide(CBP) tag, cellulose binding domain(CBD) tag, FLAG sequence tag, maltose-binding protein(MBP) tag, T7 tag, S-Tag, CCXXCC-tag, epitope tag, Chitin-binding domain tag combined with modified intein domains for reversible capture by the biomolecule capture-resin.

23. The wafer of claim 18, wherein two or more biomolecules are immobilized.

24. The wafer of claim 18, wherein the biomolecule is one or more of an enzyme, a protein, a nucleic acid, a carbohydrate, a lipid catalytic antibody, catalytic DNA, protein nucleic acid, or a ribozyme..

25. The wafer of claim 18, wherein the biomolecule is an enzyme that interacts with cofactors.

26. The wafer of claim 19, wherein the biomolecule-capture resin contains an anion of valence +2.

27. A separative bioreactor, comprising an anode and a cathode, a plurality of reaction chambers at least some being formed from a porous solid ion exchange wafer having a combination of an biomolecule capture-resin and an ion-exchange resin forming a charged capture resin within said wafer and having a genetically tagged biomolecule immobilized thereon, each of said porous solid ion exchange wafers having a charged capture resin therewithin being interleaved between a cation exchange membrane and an anion exchange membrane, and

mechanism for supplying an electric potential between the anode and the cathode.

28. The wafer of claim 27, wherein the biomolecule-capture resin contains an anion of valence +2.

29. The wafer of claim 28, wherein the anion is a transition metal ion.

30. The wafer of claim 29, wherein the transition metal ion is Ni, Co, Zn or mixtures thereof.

31. The wafer of claim 28, wherein the biomolecule-capture resin contains an affinity chromatography resin or an immobilized metal ion affinity chromatography resin or mixtures thereof.

32. The wafer of claim 30, wherein the biomolecule capture-resin includes one or more of glutathione, calmodulin, cellulose, anti-FLAG, amylose, T7 antibody, S-protein, bis-arsenical fluorescein dye FLAsH, chitin, avidin, streptavidin or mixtures thereof.

33. The wafer of claim 27, wherein the biomolecule capture-resin is present in the range of from about 5% by weight to about 40% by weight of the wafer.

34. The wafer of claim 27, wherein the ion-exchange resin is present in the range of from about 30% by weight to about 80% by weight of the wafer.

35. The wafer of claim 27, wherein the wafer is a flexible porous ion-exchange material containing one or more of anion-exchange entities or cation-exchange entities or mixtures thereof immobilized with respect to each other with a binder comprising about 25% to about 45 % by weight of the porous ion-exchange material without substantially coating the entities and has a porosity in the range of from about 15% to about 60%.

36. A method of in situ stripping a genetically tagged biomolecule from a porous solid ion exchange wafer in a bioreactor, the wafer having a combination of an biomolecule capture-resin

and an ion-exchange resin forming a charged capture resin within the wafer and having a genetically tagged biomolecule immobilized thereon, comprising contacting the porous solid ion exchange wafer in the bioreactor with a stripping fluid at a temperature and for a time sufficient to strip at least some of the genetically tagged biomolecule therefrom.

37. The method of claim 36, wherein at least 50% of the tagged biomolecule is stripped therefrom.

38. The method of claim 36, wherein at least 75% of the tagged biomolecule is stripped therefrom.

39. The method of claim 36, wherein substantially all of the tagged biomolecule is stripped therefrom.

40. The method of claim 36, wherein stripping occurs at temperatures up to biomolecule denaturation temperatures.

41. The method of claim 36, wherein stripping is accomplished with less than 50 mM biotin for biotinylated tags.

42. The method of claim 36, wherein stripping is accomplished with 1mM to 1 M imidazole for histidine tags.

43. The method of claim 36, wherein stripping is accomplished with not less than 1mM EGTA (ethylene glycol-O,O'-bis-[2-amino-ethyl]-N,N,N',N'-tetraacetic acid)for CBP tags.

44. The method of claim 36, wherein stripping is accomplished with ethylene glycol or low salt concentrations of less than about 5mM for CBD tags.

45. The method of claim 36, wherein stripping is accomplished with cysteine or thiols to cleave intein amino acid sequences.

46. A method of in situ stripping a genetically tagged biomolecule from a porous solid ion exchange wafer in a bioreactor and thereafter regenerating a genetically tagged biomolecule onto the porous solid ion exchange wafer, the wafer having a combination of an biomolecule capture-resin and an ion-exchange resin forming a charged capture resin within the wafer and having a genetically tagged biomolecule immobilized thereon, comprising contacting the porous solid ion exchange wafer in the bioreactor with a stripping fluid at a temperature and for a time sufficient to strip at least some of the genetically tagged biomolecules therefrom, and thereafter contacting the stripped porous solid ion exchange wafer in the bioreactor with an effective amount of a genetically tagged biomolecules at a temperature and for a time sufficient to immobilize genetically tagged biomolecules on the charged capture resin.

47. The method of claim 46, wherein the regenerated biomolecule is the same as or different from the stripped biomolecule.

48. The method of claim 46, wherein the biomolecule -capture resin contains one or more of an anion of valence +2, an affinity chromatography resin, an immobilized metal ion affinity chromatography resin or mixtures thereof.

49. The wafer of claim 18, wherein the tag is chemically or biochemically attached.

50. The method of claim 36, wherein stripping occurs at less than 10 mM desthiobiotin for biotinylated tags.